

(No Model.)

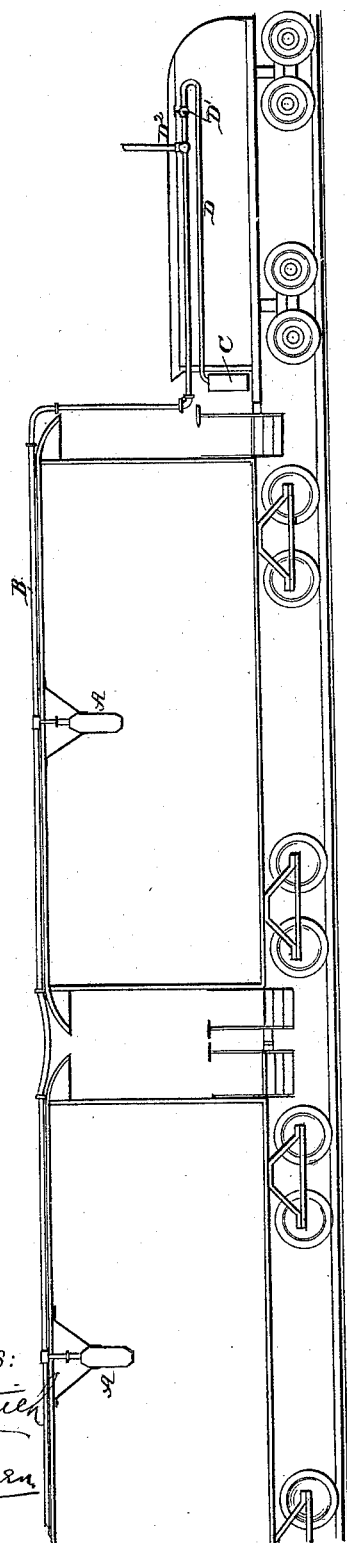
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J. N. WINN.  
STATION INDICATOR.

No. 417,895.

Patented Dec. 24, 1889.

Fig. 1.



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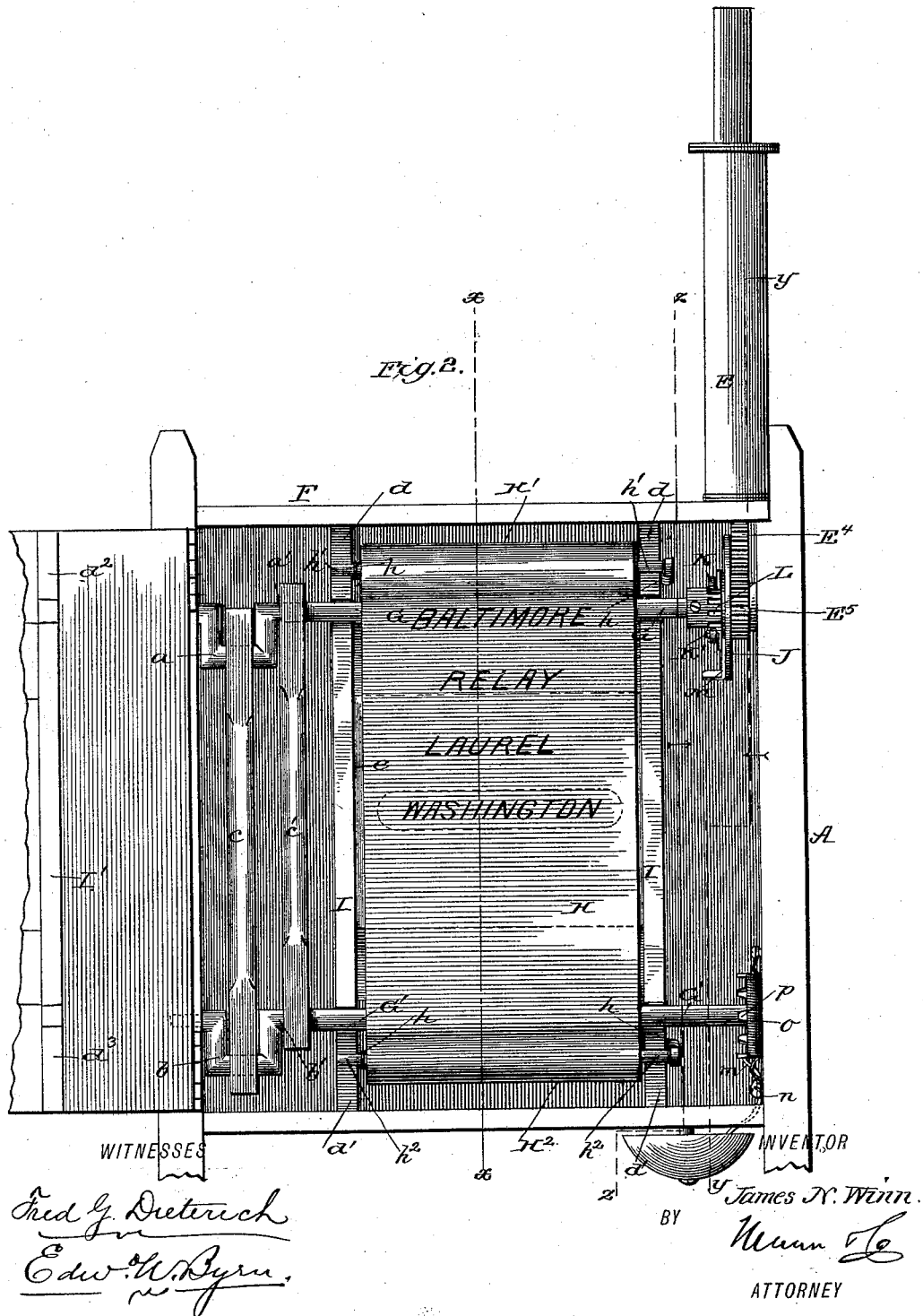
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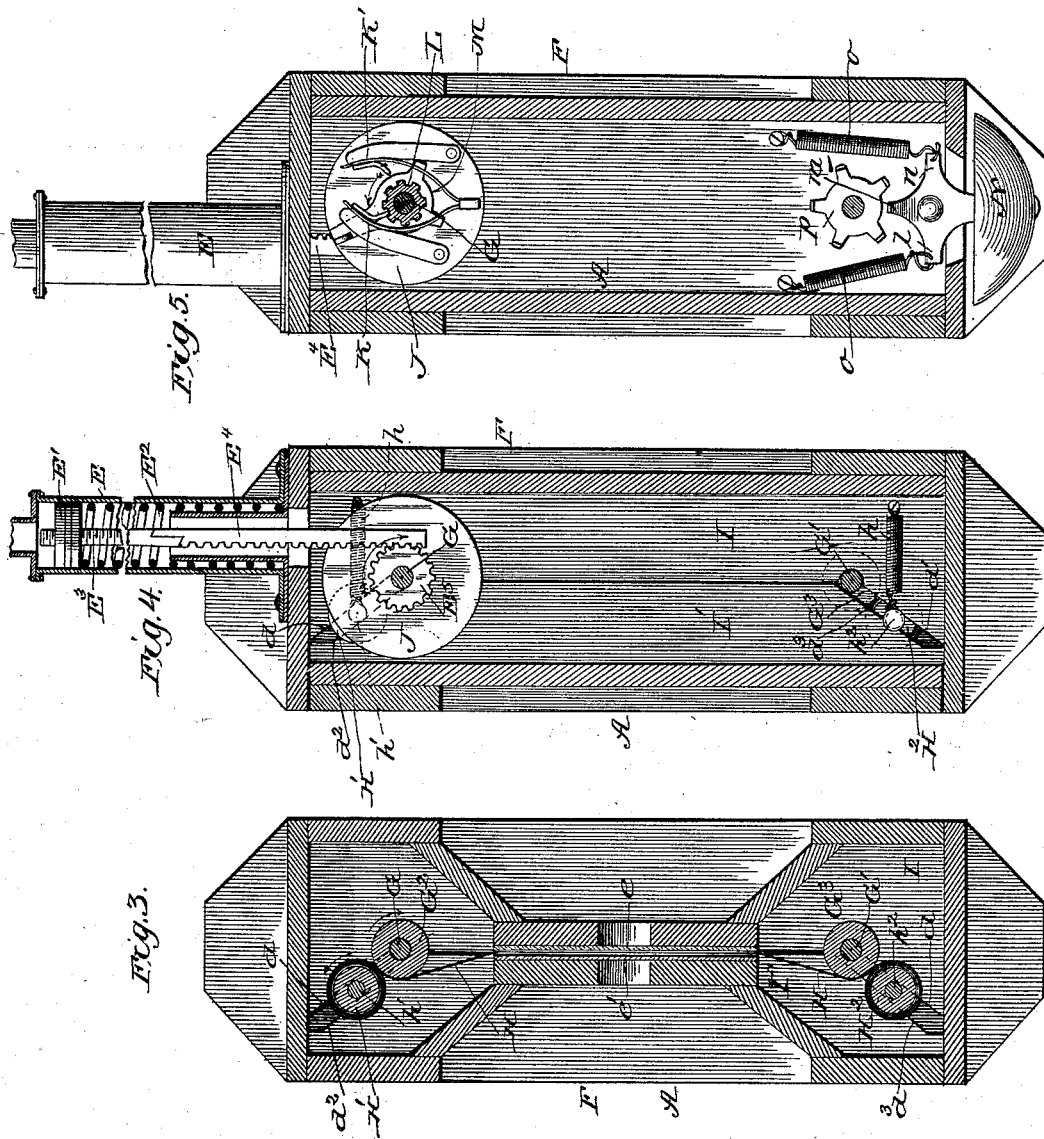
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# UNITED STATES PATENT OFFICE.

JAMES N. WINN, OF DARIEN, GEORGIA.

## STATION-INDICATOR.

SPECIFICATION forming part of Letters Patent No. 417,895, dated December 24, 1889.

Application filed June 3, 1889. Serial No. 313,018. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES N. WINN, residing at Darien, in the county of McIntosh and State of Georgia, have invented a new and useful Improvement in Station-Indicators, of which the following is a full, clear, and exact description.

My invention is in the nature of an improved station-indicator for steam-cars, designed to be located in the cars of the train and to be under the control of the engineer or fireman and to be operated by compressed air from the air-brake tank or by steam from the engine transmitted through a continuous pipe extending along the train and connected between the cars by flexible pipes with suitable couplings. It consists in the peculiar construction and arrangement of the various parts, which will first be described, and then pointed out in the claims.

Figure 1 is a view of the indicator applied to the cars of a train in connection with a continuous pipe communicating with the compressed-air tank on the tender, which is ordinarily used for operating the air-brakes. Fig. 2 is an inside face view, on a larger scale, of the indicator with the door open and the pneumatic cylinder attached. Fig. 3 is a vertical transverse section of the indicator through the middle at line *x x*. Fig. 4 is a similar view taken on the broken line *y y*; and Fig. 5 is a similar section taken on line *z z*, looking in the opposite direction.

In the drawings, Fig. 1, A represents the indicator in the car, which may be suspended in the middle of the car so as to expose both its sides, or be secured in the end of the car so as to expose but one side. This indicator connects with a continuous pipe B, running along the top, bottom, or side of the car, which pipe between the cars is connected by flexible hose-couplings and extends to the tender, where it communicates with the compressed-air tank C through the bent pipe D. This pipe has a valve D', that opens communication with the compressed-air tank, and back of this valve has an escape-valve D<sup>2</sup>, which may be opened to relieve the air-pressure on the indicators when the valve D' is closed. By means of these two valves the air-pressure may be applied to or removed from all the indicators of the train.

Upon each indicator there is an air-cylinder E, communicating with the continuous air-pipe, and this cylinder contains a closely-fitted piston E', held up by a spiral spring E<sup>2</sup>, and having a piston-rod E<sup>3</sup>, whose lower end extends into the indicator and is made in the shape of a toothed bar or rack E<sup>4</sup>, which meshes with a pinion or gear wheel E<sup>5</sup>. This piston is operated in one direction by the air-pressure and in the other direction by the spring, and furnishes means for operating the indicator, which latter I will now describe in detail.

F is the inclosing-case of the indicator, in opposite ends of which are journaled the shafts G G', bearing friction-rollers G<sup>2</sup> G<sup>3</sup>. These two shafts are connected together for simultaneous and equal revolutions by double cranks *a a'* and *b b'* and parallel pitmen or connecting rods *c c'*. This connection for the two shafts avoids the dead-center and causes the two friction-rollers to revolve in unison with a positive action.

H is a flexible belt or station-strip, on which are printed the names of the stations in the order in which they occur. This strip is made of canvas, silk, or other flexible material, and one end is wound around a roller H' at the top, and the other end around a roller H<sup>2</sup> at the bottom. These two rollers are pressed into frictional contact with the rollers G<sup>2</sup> G<sup>3</sup>, which latter serve to feed at one end and take up at the other a definite quantity of the belt or station-strip without regard to the amount of strip rolled on the shaft. It will be remembered that the material rolled on the shaft-rollers causes one to continually increase in size and the other to decrease, and consequently a uniform feed imparted direct to these rollers would cause a constantly-varying distance in the feed of the strip, which would throw the names of the station out of registration. To avoid this and impart an equal feed to the strip, I place the actuating-rollers G<sup>2</sup> G<sup>3</sup> in frictional contact with the strip-rollers, so that an equal amount of the strip is unrolled at one end and rolled up at the other for each successive movement, irrespective of the diameter of the roll or amount of material that may be wound around the strip-rollers.

To hold the strip-rollers in proper fric-

tional contact with the actuating friction-rollers, the strip-rollers are provided with journals  $h' h^2$ , which bear upon inclines  $d' d'$ , formed on strips I; and I provide the springs  $h$ , which are connected to the case and tend to bring the journals of the strip-roller toward the actuating friction-rollers. The middle part of the flexible station-strip between a glass plate  $e$ , set in a sunken panel on one side of the case, and a glass plate  $e'$ , set in a sunken panel on the opposite side of the case. Both these panels have narrow slots or openings in them, through which the names of the stations successively appear as the strip of the station-indicator moves. One panel is formed between the strips I I of the case and is a stationary panel, while the other is formed between the strips I' and is hinged to open like a door. At the top and bottom of the strips I' there are inclines  $d^2 d^3$ , corresponding to the inclines  $d' d'$ , which they approach when this panel is closed. When this panel is opened, it will be seen that it exposes the journals of the strip-rollers, so that the station-strip may be easily taken out and a new one substituted for through trains or cars.

For imparting motion to the friction-rollers for actuating the station-strip, the pinion or gear wheel  $E^5$  is loosely hung upon the shaft of the upper friction-roller and has rigidly attached to it a disk J. This disk is provided with two pawls K and K', forced by springs into engagement with the teeth or notches of a boss of hub L, which is rigidly fixed to the shaft. One of these pawls is thrown into engagement with the notched hub to rotate the shaft in one direction when the train is moving in one way, and when the train is about to return that pawl is thrown out and the other thrown in to rotate the shaft in the opposite direction. For reversing these pawls, a cam-lever M is hung upon the shaft and is made to alternately lift one or the other of the pawls away from the notched hub.

As the name of each new station is presented to view a signal is given upon a bell N, and for this purpose its hammer is provided with a three-pronged head  $l m n$ , of which the prongs  $l$  and  $n$  are held by springs  $o o$ , while the prong  $m$  is struck by the arms of a tappet-wheel  $p$  on the lower shaft. This construction of alarm mechanism, it will be seen, is equally as well operated when the device is operated in either direction.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination, with the actuating-roller in a station-indicator, of a rigidly-attached notched hub, a pinion with rigidly-attached disk hung upon the shaft of the roller, two oppositely-acting spring-pawls attached to said disk, a cam-lever for alternately throwing out the pawls, a pneumatic cylinder with piston and spring, and a piston-rod formed as a rack and meshing into the pinion, substantially as shown and described.

2. The combination, with the flexible station-strip having stations marked thereon, and the two actuating-rollers in a station-indicator, of a pair of shafts carrying said rollers and formed with double cranks, and a pair of connecting rods or pitmen connecting the cranks of the two shafts for securing an equal and positive rotation in the two shafts, substantially as shown and described.

3. The combination, in a station-indicator, of a flexible station-strip, feed-rollers carrying the same, and a pair of actuating friction-rollers held in frictional contact with the peripheries of the feed-roller, devices for imparting motion to the actuating-rollers, and means for connecting the two rollers for equal movement, substantially as and for the purpose described.

4. The combination, in a station-indicator, of the flexible station-strip, distending-rollers for the same, and sunken panels with windows or slots formed in the case and arranged upon both sides of the strip and extending between the rollers to the plane of the strip, the said sunken panels forming chambers at top and bottom for the reception of the rollers, substantially as shown and described.

5. The combination, in a station-indicator, of the two actuating friction-rollers and means for connecting and rotating them, the two feed-rollers bearing the flexible strip and having journals at the ends, inclines supporting said journals, and springs for forcing the journals of the feed-rollers toward the actuating-rollers, substantially as shown and described.

6. The combination, with the roller in a feed-indicator, having a tappet-wheel thereon, of a bell and a hammer-lever having three prongs, the two outer prongs being held by springs, and the inner prong being arranged in range of contact with the tappet-wheel, substantially as shown and described.

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Witnesses:

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